



## Virtual Campus Hub

### Project overview

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# VIRTUAL CAMPUS HUB

## Project overview



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Frank\_Vercoulen, TU/e

## Project objectives (Annex I)

*The objective of the project is to deliver a working concept for a Virtual Campus Hub in a form ready to be implemented at partner universities, research organizations with links to industries, businesses and innovation parks.*

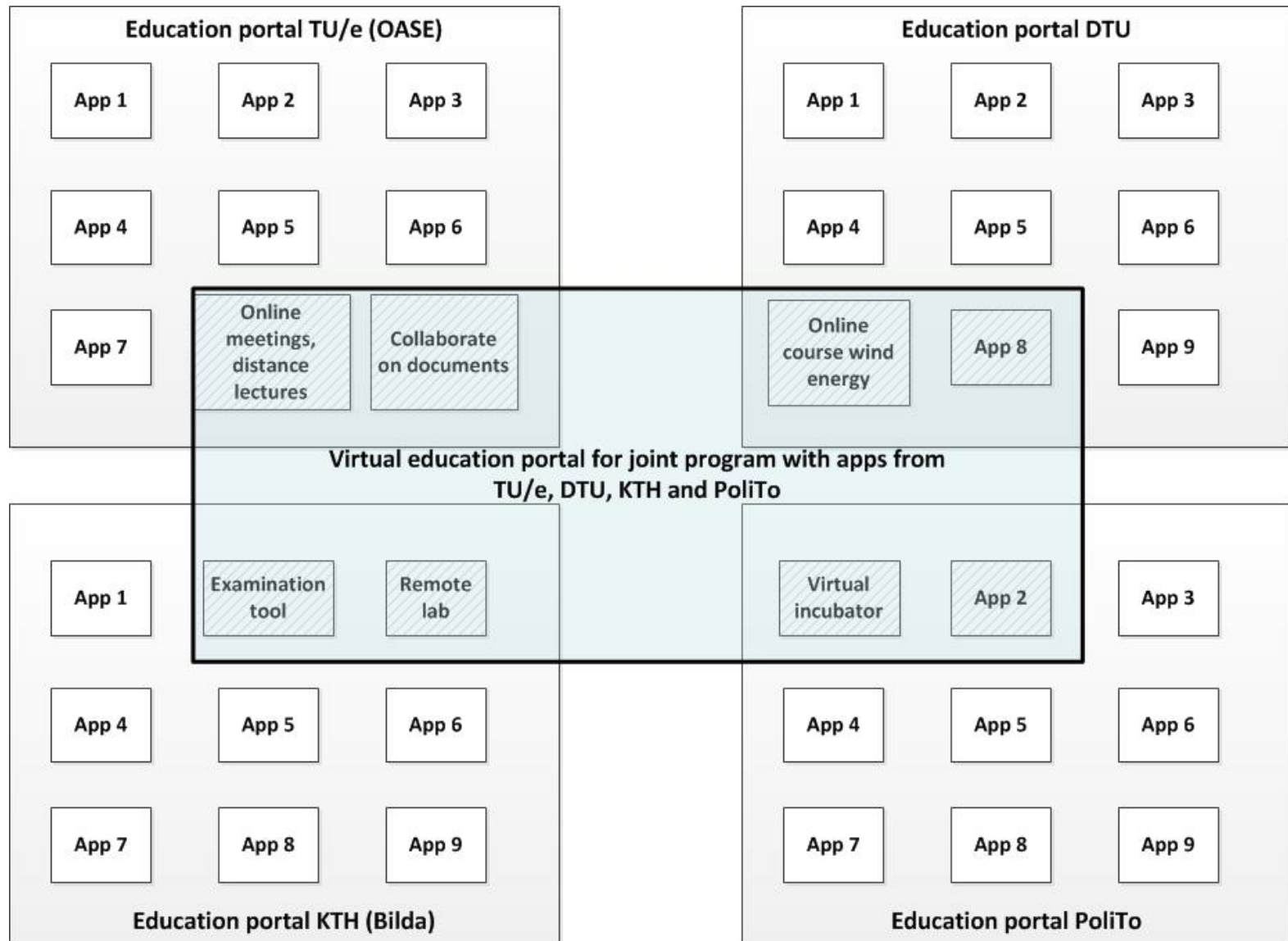
*The result will be published in a format that will allow other organizations to implement the Virtual Campus Hub concept.*

## Key components (Annex I)

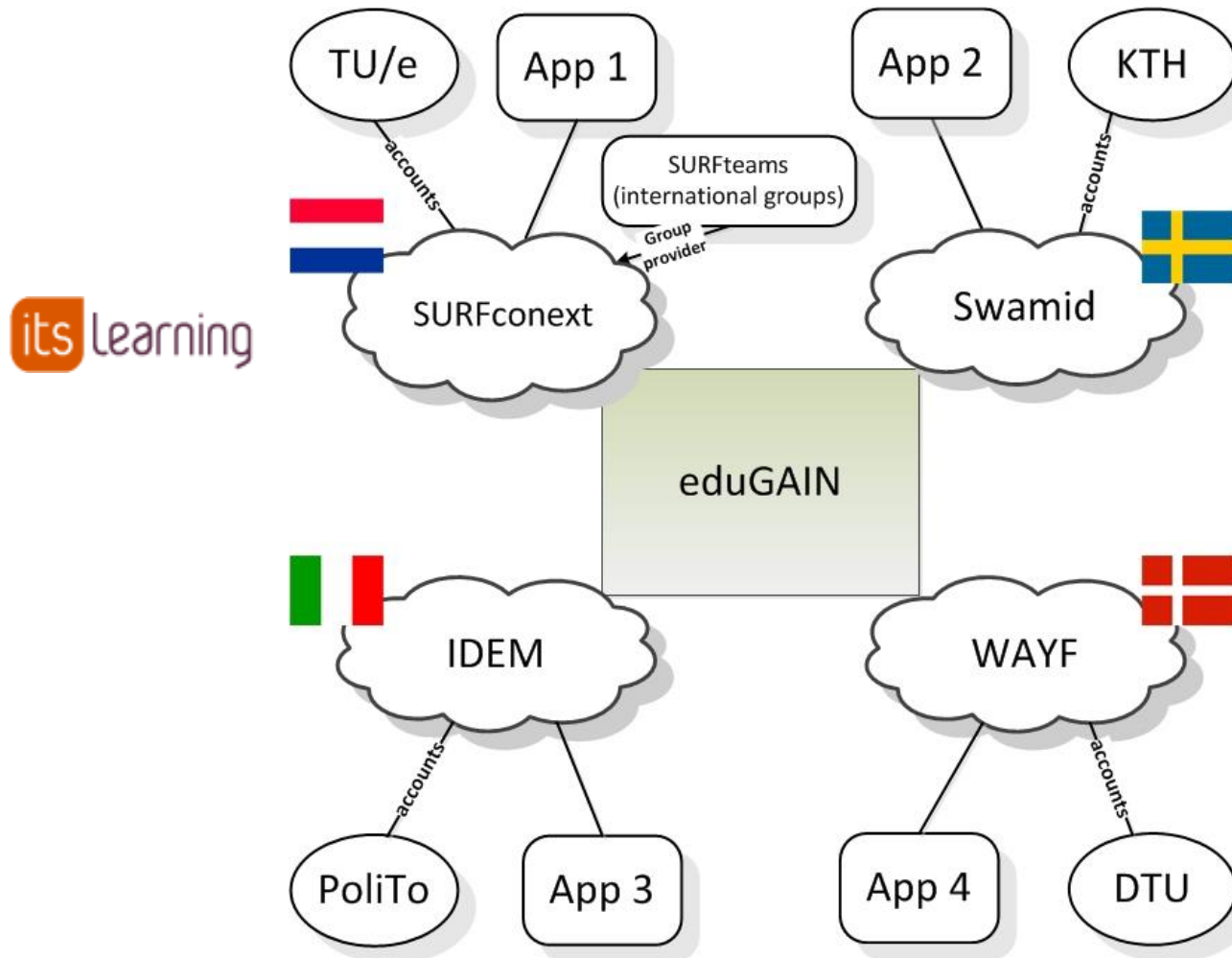
- **A technical platform** that can deliver virtual meeting spaces for lectures, conferences, laboratory and numerical exercises, as well as innovation tools, executive learning modules, self-study, etc.
- **A set of documented best practices** for the use of the platform for courses, teaching & learning methods, innovation processes, networking and joint programs, developed through continued complementary on-site activities.
- **A growing inventory of staff competence and experience** gained from using the Virtual Campus Hub for enhancing quality and scaling-up innovation, education and training activities primarily related to sustainable energy, combined with dissemination and communication of the resulting best practices

<http://www.virtualcampushub.eu/>

# Virtual Campus Hub concept





# The infrastructure behind




# Virtual Campus Hub portal

<https://vch.tue.nl>



Login




**Post educational course on wind energy**



**Start-Up Pre-Incubation Support**



**Remote cascade lab**



**Collaboration environment**

**My Virtual Campus group memberships**



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**Virtual Campus Hub**

Virtual Campus Hub is a collaborative project between four technical universities in Europe. The project runs from October 1, 2011 to September 30, 2013.





The project is partially funded by the European Commission under the 7th Framework Programme.

More information can be found on [the official project website](#).

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**Partners**

## The project has delivered

- The **first demonstration** of international collaboration between universities **via eduGAIN**
- The **first connection of a cloud service** via eduGAIN
- Identification of **user requirements, best practises, and barriers** for using European E-infrastructure
- A boost in the use of **state-of-the-art E-learning tools and sharing of resources** for energy education at the partners
- Demonstrations of **new ways to integrate education, research, and innovation** in sustainable energy



## Key facts and figures

- **1175 users** have tried the E-learning applications from Virtual Campus Hub (~500 unique users).
- **16 university courses** have made use of E-learning applications from the project.
- **25 university teachers** have been involved in online teaching and/or development of online teaching material.
- **60 members of staff** from enterprises have been involved as users of Virtual Campus Hub applications.
- **8 IdPs and 4 SPs** have been connected to the Virtual Campus Hub environment.

# Access to learning materials: Post educational course on wind energy (DTU)

itslearning - Windows Internet Explorer  
https://windenergy.itslearning.com/main.aspx?CourseId=2

DTU Wind Energy  
Department of Wind Energy

Dashboard Courses Projects Calendar ePortfolio My library

Go to ... Home » Courses » WASP course

WASP course

Course dashboard  
Status and follow-up  
Participants  
Groups  
Settings  
Course content  
Planner  
Links  
Trash can  
WASP course  
Team discussions  
0 Welcome to the WASP course  
1 Introduction to WASP  
2 Wind-climatological inputs  
3 Topographical inputs  
4 Land cover and roughness effects  
5 Elevation and orographic effects  
6 Wind Resource Assessment (WRA)  
7 Wind farm calculations  
8 Case study  
9 Working with WASP  
After the course  
Teacher's resources  
Evaluation of WASP e-learning  
Add

Bulletins  
Add bulletin Subscribe  
Show all bulletins

Student login  
Hello all,  
I have created a student account so we can view the course material exactly as the students will see it. The account has the following login:  
User: student  
Password: Online2306  
I have not discovered any major differences from our views. The content box is also visible for the students.  
Merete  
Created by Badger, Merete on 13/09/2012 14:13

Interesting video about online learning of the future  
Jergen Kjems pointed me to this interesting and inspiring video about LARGE scale online learning - take a look if you get a chance:  
[http://www.ted.com/talks/daphne\\_koller\\_what\\_we\\_re\\_learning\\_from\\_online\\_education.html?utm\\_source=newsletter\\_weekly\\_2012-08-02&utm\\_campaign=newsletter\\_weekly&utm\\_medium=email](http://www.ted.com/talks/daphne_koller_what_we_re_learning_from_online_education.html?utm_source=newsletter_weekly_2012-08-02&utm_campaign=newsletter_weekly&utm_medium=email)  
Enjoy!  
Merete  
Created by Badger, Merete on 06/08/2012 14:30

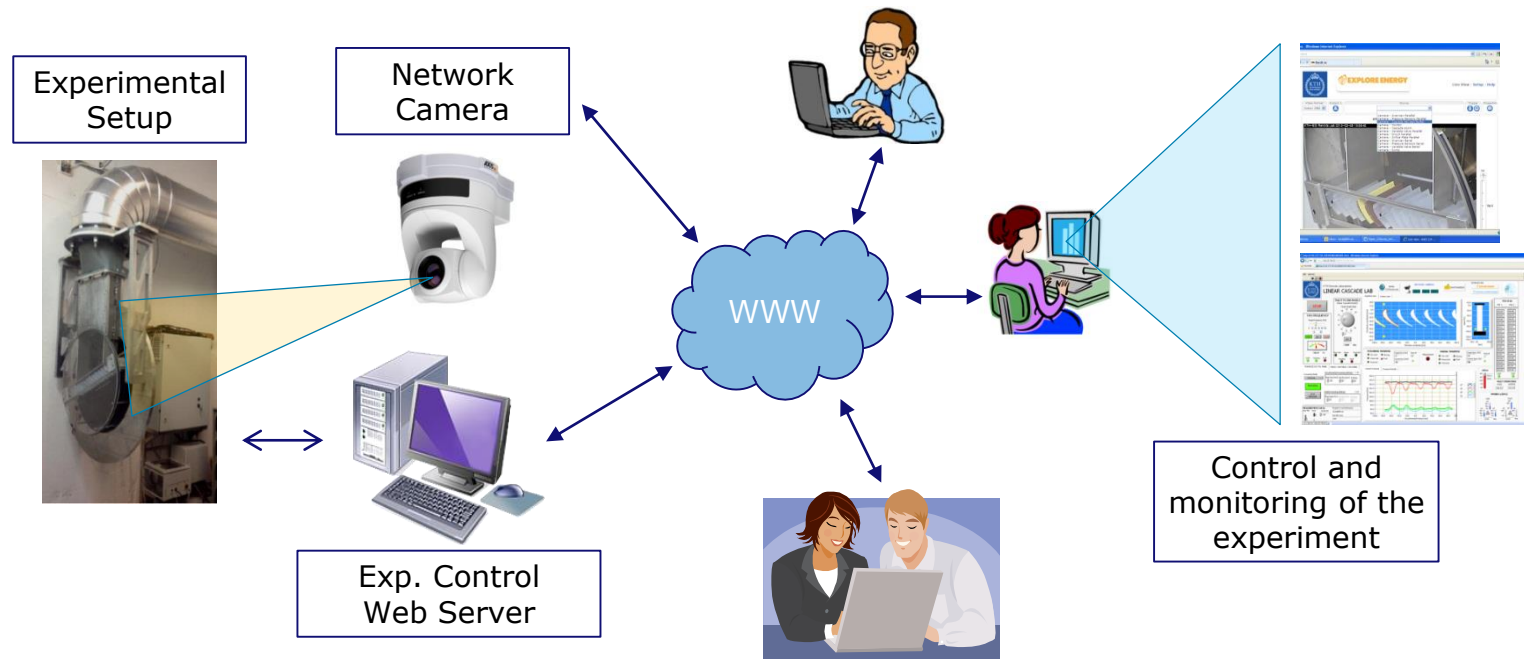
Funding and collaboration  
DTU  
SEVENTH FRAMEWORK PROGRAMME  
VIRTUAL CAMPUS HUB  
Part of Explore Energy  
This course is developed by the Technical University of Denmark, Department of Wind Energy.  
The work is partially funded by the European Commission under the 7th Framework Programme, project Virtual Campus Hub.

Latest changes  
Subscribe  
Course structure overview available in 0.1 About this course  
Tuesday at 10:28 by Badger, Merete  
6.4B Discussion Forum available in 6.4 Observed, generalized and predicted wind climates  
Tuesday at 11:15 by Karagalli, Ioanna  
6.4A Discussion Forum available in 6.4 Observed, generalized and predicted wind climates  
Tuesday at 11:15 by Karagalli, Ioanna  
6.3B Discussion Forum available in 6.3 Inputs for wind resource prediction  
Tuesday at 11:14 by Karagalli, Ioanna  
6.3A Discussion Forum available in 6.3 Inputs for wind resource prediction

*Course materials and interaction through LMS  
(itslearning as a cloud service provider)*

# Access to learning materials: Remote laboratory (KTH)

The **remote laboratory** is operated and monitored on-distance for **real-time experiments** and collection of measurement data.



More info: [http://www.energy.kth.se/proj/projects/Remote\\_labs/RL/RL\\_website/RCL/RCL.html](http://www.energy.kth.se/proj/projects/Remote_labs/RL/RL_website/RCL/RCL.html)

# Collaboration environment (TU/e)

- **Share and collaborate on documents (Sharepoint)**
- **Efficient and reliable setup of online activities (unified communications, together with SURFnet)**  
(fully online or with online participation of some)
  - Remote lectures
  - Joint meetings and events
  - Supervision of student projects and consultation of experts

# Technological components

## ***Federated authentication***

- ✓ Use your own institution's account for applications elsewhere

## ***Group management***

- ✓ Using cross-institutional and cross border group definitions (virtual organizations) for authorization at different locations and in different applications
- ✓ In this project: SURFteams (part of SURFconext, based on Grouper from Internet2). Also available as open source (Openconext, <http://www.openconext.org>).
- ✓ No general standard across NRENs available yet.

# Experiences

- FIM is promising technology and fairly well standardized across NRENs (except for group management)
- Enables institutions to join forces in education
- Knowledge and motivation at local institutions still very limited
- Crossing borders (inter-federation) is also new to NRENs
- Difficult to sell infrastructure improvements to users
- Not allowing industry on Géant infrastructure as IdP hampers collaboration with industry
- Involve federations and central IT departments from the start!
- UC hub technology in earlier stage of development than federated logon: few standards available (yet) and companies not very eager to connect to FIM infrastructure (yet?)

# Where should it go from here?

1. Towards institutions knowing about (cross border) FIM
2. Towards institutions wanting (cross border) FIM
3. Towards institutions preparing properly for (cross border) FIM projects
4. Towards (cross border) FIM as a utility service
5. Towards federations as knowledge brokers for institutions
6. Towards federations accepting reality

# Towards institutions knowing about (cross border) FIM

- People that decide on or initiate collaborations mostly don't know that FIM exists and could be useful. More marketing efforts by federations might help.



# Towards institutions wanting (cross border) FIM

- For people to understand FIM's usefulness, you need a perspective for the future: what's next and where will it lead us? → (cross border) FIM as a growth path
- Beyond “federated logon only”: group management, ID-mapping, presence, calendaring... → what functionalities are needed for which purposes and how do they fit the bigger picture?
- What functionalities are federations likely to pick up and what is left to others?

# Towards institutions preparing properly for (cross border) FIM projects

- Involving all relevant stakeholders (both federations and internal stakeholders) from the start (i.e. while writing the proposal) would help a lot
- Analyze the architecture needed to open up the internally focused ICT infrastructure to the outside world (as R&E processes using it have done a long time ago)

# Towards (cross border) FIM as a utility service

- Black box for institutions
- Better standardization / attuning of technology involved in inter-federation (e.g. group management)
- A general solution for guest accounts could be useful (via eduGAIN?)
- Coordination of (inter)federation work by federations themselves
- Federations as (technical and legal) brokers for (cross border) cloud services?

# Towards federations as knowledge brokers for institutions

- Institutions have little knowlegde: they need to know who to ask (about technical and legal issues)
- Federations could assist institutions in working out the right architecture for (international) collaborations
- Federations could assist institutions in assessing the “FIM readiness” of applications that an institution has or considers buying

# Towards federations accepting reality

- R&E collaboration with industry and others is there to stay. Treat it as such
- Thus: acceptance of industry IdPs, eID, social ID and perhaps other solutions?

## OEUVRE Proposal - Partners

- **H2020 EINFRA-9 'Research Infrastructures'**  
Should run for 3 years, start Q3 2015
- **6 universities across Europe**  
(KTH, SE; DTU, DK, TUD, NL; Polito, IT; CENER, SP)
- **3 Technology Partners**  
(EUSTIx, CH; SURFnet, NL, ACOnet / UNI. Vienna, CH)
- **6 Industry Partners (1 per University)**

# OEUVRE Proposal - GOALS

## **Create, enable and use Services**

- Create and run AAI Infrastructure for VREs in renewable energy sector using existing services like OpenConext, and eduGAIN.
- Create services that are reusable by other sectors.
- Connecting generic collaboration services
- Specialized services like datasets and instrumentation
- Link with Stork2

## **Enhanced Privacy**

- Special attention will be given to enhancing the infrastructure to provide better privacy for end-users

## **Sustainable**

- Deliver businesscase for sustaining the infrastructure

# Acknowledgements



*Virtual Campus Hub is partially funded by the European Commission under the 7th Framework Programme*



*National federations are involved in Virtual Campus Hub*



*International e-Infrastructure forms the backbone of the Virtual Campus Hub technology*



*Cloud service provider connected to Virtual Campus Hub*

